ATTACHMENT B

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-12. (Canceled)

13. (Previously Presented) A continuous flow measurement recorder for determining and displaying water flow in an open channel, said continuous flow measurement recorder comprising:

a sensor for determining, using a measurement structure in the open channel, the pressure head of water flowing in the open channel and for producing a corresponding output signal;

a central processing unit for receiving said output signal from said sensor, for calculating total water flow in the channel based on said output signal and for producing a total flow signal based on the calculated total water flow;

a display device for receiving said total flow signal from said central processing unit and for displaying total flow based thereon; and

a single housing for housing said sensor, said central processing unit, and said display device, said housing comprises a top portion, a bottom portion mechanically connected to the top portion, and a downwardly depending member connected to said bottom portion of said housing, and said sensor being received in said downwardly depending member.

14. (Previously Presented) The continuous flow measurement recorder of claim 13 wherein said sensor comprises an ultrasonic sensor and said measurement structure comprises a weir or flume.

claims listing

15.   (Previously Presented) The continuous flow measurement recorder of claim 13 wherein said display device comprises a liquid crystal display device.

16.   (Previously Presented) The continuous flow measurement recorder of claim 13 wherein said central processing unit determines average pressure head in the channel over a predetermined period of time based on said output signal received from said sensor, stores said average pressure head in memory and uses said stored pressure head to calculate total flow.

17.   (Previously Presented) The continuous flow measurement recorder of claim 16 wherein said central processing unit stores, in memory, values for a coefficient, C, and an exponent, n, both based on the characteristics of the measurement structure used and uses said values to convert said average pressure head into a value for the flow discharge rate, Q, using the equation;

$$Q \quad = \quad Ch_a{}^n$$

where h_a is equal to the average pressure head over said predetermined period of time.

18.   (Previously Presented) The continuous flow measurement recorder of claim 17 wherein said central processing unit converts the flow discharge rate, Q, into a total flow value, T_f, using the equation:

$$T_f \quad = \quad T_i + Qt$$

where t is equal to said predetermined period of time and T_i is a previously determined value for total flow of the beginning of period t.

19.   (New) A continuous flow measurement recorder for determining and displaying water flow in an open channel, said continuous flow measurement recorder comprising:

an ultrasonic sensor for determining, using a weir or flume measurement structure in the open channel, the pressure head of water flowing in the open channel and for producing a corresponding output signal;

claims listing

a central processing unit for receiving said output signal from said sensor, for calculating total water flow in the channel based on said output signal and for producing a total flow signal based on the calculated total water flow;

a display device for receiving said total flow signal from said central processing unit and for displaying total flow based thereon; and

a single housing for housing said sensor, said central processing unit, and said display device, said housing comprising a top portion, a bottom portion mechanically connected to the top portion so that the top portion can be separated from the bottom portion, and a downwardly depending member connected to said bottom portion of said housing, said sensor being received in said downwardly depending member, and said top position including a window in an upper region thereof through which said display device can be viewed, said central processing unit determining average pressure head in the channel over a predetermined period of time based on said output signal received from said sensor, storing said average pressure head in memory and using said stored pressure head to calculate total flow, said central processing unit further having stored therein, in memory, values for a coefficient, C, and an exponent, n, both based on the characteristics of the measurement structure used and uses and said central processing unit using said values to convert said average pressure head into a value for the flow discharge rate, Q, using the equation;

$$Q \quad = \quad Ch_a^n$$

where h_a is equal to the average pressure head over said predetermined period of time, and said central processing unit converting the flow discharge rate, Q, into a total flow value, T_f, using the equation:

$$T_f \quad = \quad T_i + Qt$$

where t is equal to said predetermined period of time and T_i is a previously determined value for total flow of the beginning of period t.